

REMARKS/ARGUMENTS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 1-21 are presently active in this case. The present Amendment amends Claims 1-12 and adds Claims 13-21.

The outstanding Office Action objected to the abstract and Claims 4-12 because of informalities. Claims 1-3 and 10-12 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Steel (U.S. Patent No. 4,317,646) in view of Bobo (U.S. Patent No. 5,088,888).

Claim 9 was indicated as allowable if rewritten in independent form. Applicant acknowledges with appreciation the indication of allowable subject matter. However, since Applicant considers that Claim 1, from which Claim 9 depends, defines patentable subject matter, Claim 9 is maintained in dependent form at the present time.

In response to the objections to the Abstract, the Abstract of the Disclosure is amended to correct the noted informalities. In light of their formal nature, the changes to the Abstract do not raise a question of new matter.

In response to the objections to the claims, the claims are amended to correct the noted informalities and to better comply with U.S. claim drafting practice.

In order to vary the scope of protection recited in the claims, new Claims 13-21 are added. New Claims 13-21 find non-limiting support in the disclosure as originally filed, for example in Figs. 2-3, the original claims, at page 10, lines 19-29 and at page 11, lines 10-23. Therefore, the changes to the claims are not believed to raise a question of new matter.<sup>1</sup>

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<sup>1</sup> See MPEP 2163.06 stating that "information contained in any one of the specification, claims or drawings of the application as filed may be added to any other part of the application without introducing new matter."

In response to the rejections of the claims under 35 U.S.C. §103(a), Applicant respectfully requests reconsideration of this rejection and traverses the rejection, as discussed next.

Briefly recapitulating, Applicant's invention, as recited in Claim 1 relates to a turbomachine including a casing, a rotor, and a plurality of cooled ring segments situated between the casing and the rotor. Each ring segment includes a main cooling cavity and is attached to the casing by a fastening device. In Claim 1, the fastening device *is a clamping screw pinning the ring segment against the casing*. Further, the clamping screw is crossed through by a cooling airway that communicates with the main cooling cavity of the ring segment. As explained in Applicant's specification, once clamped in place, the ring segment and the casing can form a chamber that reduces leaks as compared to conventional configurations.<sup>2</sup>

Turning now to the applied prior art, the Steel et al. patent discloses a device for controlling the clearance between the blade tips of a gas turbine engine turbine rotor and associated segmented shrouds. The Steel et al. device includes a control ring which is secured to the engine casing by a plurality of dowels. The control ring is supplied with cooling fluid to its hollow interior. However, the Steel et al. patent fails to teach, among other things, a clamping screw that pins ring segments against a casing, as explained next.

In the Steel et al. device, the "plurality of cooled ring segments" (claimed in Applicant's Claim 1) arguably corresponds to the segment shroud portions 24,<sup>3</sup> but not to the whole control ring 18 (incorporating the segments 24) as stated in the outstanding Office Action. In fact, these shroud portions 24 are fixed radically inwardly of a hollow annular ring member 19 being fixed to casing portions 14a, 14b by the hollow dowels 17.<sup>4</sup> The elements

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<sup>2</sup> See Applicant's specification at page 10, lines 26-29.

<sup>3</sup> The Steel et al. patent at column 2, lines 66-68.

<sup>4</sup> The Steel et al. patent, Fig. 2.

19, 24 together form a part of a control ring 18. Therefore, the subject matter of Claim 1 differs from the Steel et al. device at least by the fact that the claimed clamping screw cooperates with its corresponding ring segment, whereas in the Steel et al. device, the dowel 17 only cooperates with the ring member 19 but not with the segment 24 attached to this ring number 19. Further, the dowels 17 implemented in the Steel et al. device are not used for pinning any element against the casing 14a, 14b, as recited in Applicant's Claim 1. The Steel et al. dowels 17 only provide a support for the ring member 19 being placed at a distance from the casing 14a, 14b (fig. 2). Further, Claim 1 recites a clamping screw, whereas the Steel et al. patent only discloses hollow dowels 17. The secondary reference, the Bobo patent, fails to remedy the above-noted deficiencies of the Steel et al. patent. Therefore, even if the combination of the Steel et al. and Bobo patents is assumed to be proper, the combination fails to teach every element of the claimed invention. In particular, the combination fails to teach the claimed clamping screw that pins the ring segment against the casing. Accordingly, Applicant respectfully traverses, and requests reconsideration of, this rejection based on these patents.<sup>5</sup>

Furthermore, there is no evidence for a motivation to modify the teachings from the Steel et al. patent so as to arrive at Applicant's claimed inventions. The position that these teachings *could* be modified to arrive at the claimed inventions would be insufficient to establish a *prima facie* case of obviousness.<sup>6</sup> Furthermore, it is not clear how such

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<sup>5</sup> See MPEP 2142 stating, as one of the three "basic criteria [that] must be met" in order to establish a *prima facie* case of obviousness, that "the prior art reference (or references when combined) must teach or suggest all the claim limitations," (emphasis added). See also MPEP 2143.03: "All words in a claim must be considered in judging the patentability of that claim against the prior art."

<sup>6</sup> See MPEP 2143.01 stating that the "fact that references can be combined or modified is not sufficient to establish *prima facie* obviousness"; see also same section stating "[a]lthough a prior art device 'may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so,'" (citation omitted).

modification could be achieved without a substantial reconstruction or redesign of the systems disclosed by Steel et al. patent.<sup>7</sup>

Furthermore, the Steel et al. and Bobo patents, taken individually or in combination, fail to teach every element of the turbomachine recited in new Claims 13-21. For example, the combination of references fails to teach a clamping screw that is in contact with a corresponding cooled ring segment, as recited in new Claim 13. The combination further fails to teach or suggest a plurality of fastening devices, wherein each of the fastening devices is configured to maintain one of the ring segments in contact with the casing, as recited in new independent Claim 15. The combination further fails to teach or suggest that each of the fastening devices is configured to maintain one of the ring segments in contact with the casing via at least one boss provided on an upper part of the ring segments, as recited in Claim 18; nor that the at least one boss includes an upstream boss and a downstream boss, as recited in Claim 19. Finally, Claims 20-21 should be allowed at least for the same reasons Claim 9 was indicated as allowable. Specifically, these claims recite that each of the ring segments includes an upstream edge in contact with an upstream rim belonging to the casing (Claim 20), and that each of the ring segments further comprises a downstream edge in contact with a downstream rim belonging to the casing (Claim 21).

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 1-21 is earnestly solicited.

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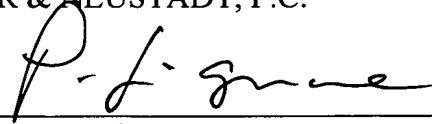
<sup>7</sup> See In re Ratti, 270 F.2d 810, 813, 123 USPQ 349, 352 (reversing an obviousness rejection where the "suggested combination of references would require a substantial reconstruction and redesign of the elements shown in [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate.")

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Reply to Office Action of July 13, 2005

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicant's undersigned representative at the below listed telephone number.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.



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Philippe J.C. Signore, Ph.D.  
Attorney of Record  
Registration No. 43,922

Customer Number  
**22850**

Tel: (703) 413-3000  
Fax: (703) 413 -2220  
(OSMMN 06/04)